

080401a8-0

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COLLABORATORS

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REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

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Chapter 1

080401a8-0

1.1 No title

```
SET2ANIM v0.4
©1999
Daniel~Mealha~Cabrita
1st December, 1999

LEGAL~ASPECTS
-- READ THIS BEFORE ANYTHING!

What~is~this~program~for?
System~requeriments
Using~SET2ANIM...
Program~limitations~and~TO~DOs
Development~history
Common~Questions~&~Answers
About~IFF~ANIM+SLA~(audio~ANIM)
About~the~author
```

1.2 What is this program for?

SET2ANIM is a program which converts animations from MovieSetter format to IFF ANIM5+SLA (anim with audio), the most common loseless animation format used in Amiga computers.

WHY WOULD I WANT TO CONVERT ANIMATIONS FROM MOVIESETTER FORMAT?

quick:

1. - You may want to play them in a modern anim player
(if you know MoviePlayer, you know exactly what i mean)
2. - You may want to edit them with a modern anim editor
3. - You may want to convert these animations to MPEG, QuickTime, etc video format.

MovieSetter was an innovative product which generated files in its very own format, dramatically different to conventional whole-frame formats such as ANIM, MPEG, QuickTime, etc.

Adding to this, the MovieSetter files have several small errors and redundances... And add the fact the format isn't opened (all info got by reverse engineering the files).

It's very complicated to support such format!

The idea behind SET2ANIM is to SAVE these animations from inaccessibility converting them to a known, popular and well-designed animation format.

The IFF ANIM+SLA format is an extension to popular IFF ANIM standard, with audio information added with NO modification in conventional ANHD, DLTA, etc internal data chunks.

Read about ANIM+SLA format in its specific chapter in SET2ANIM documentation.

The converted ANIM+SLA file may be loaded and played by any 100% IFF-compatible animation program (such as Deluxe Paint V). The audio will be played if the program supports the ANIM+SLA format (such as BigAnim 4.0, freely available in Aminet).

1.3 System requeriments

SET2ANIM needs the following to run:

- Amiga OS 3.0 (3.1 or higer strongly recommended)
 - 68000 processor or better (version for 020 too)
 - Any Amiga chipset compatible at OS level with OCS.
 - Near 250Kb of free chip mem.
 - Around 200kb + MovieSetter_animation_size of other mem (contiguous).
 - Storage space where to dump the ANIM file.

 - Patience, if you're running in 030 or below.
 - Even more patience if you're not using AGA.
-

1.4 Using SET2ANIM...

It's very easy to use SET2ANIM...

You have this moviesetter file:

```
Fool
```

```
> set2anim Fool Fool.anim
```

you wait...

after that you have:

```
Fool      (the original file)
Fool.anim (the converted file)
```

wow! how hard it was!

Now more detailed information:

usage:

```
SET2ANIM <MovieSetter_file> <output_ANIM_file> [option] [option] ...
```

options:

```
-noaudio          - Converts to IFF ANIM5 but with no audio data (by
                    default there's audio)
                    This is useful when you want to load the animations
                    in not-so-smart programs, since they get confused
                    because the audio data. They simply refuse to load
                    the files.

-framestep <value> - Default framestep to use if the animation has it
                    undefined (default is 5, 12fps in NTSC)
                    Some animations haven't the framerate really defined
                    (the default value wasn't touched by the author while
                    creating the animation).
                    The result is that these animations say 'run me
                    at 60fps'.
```

Why this? That's because in the beginning people had less-powered Amigas with 020 or 030 maximum (000 typical) and OCS/ECS so the speed was limited by hardware inefficiency for running the anim at full speed. So the anims' speed looked right.

Now with AGA and 060 machines around these anims just run too fast.

I, the author, determined that the best framerate for these cases is 12fps in NTSC (all the animations are

NTSC since Moviesetter is a NTSC-only software).
These converted anims will run at 10fps in PAL because the division factor of 5.
Some people may find the speed is not good (they're *WRONG* IMHO ;) so there's the possibility of changing this for other framerates:

In NTSC, division factor of 1 = 60 fps, 2 = 30 fps, 3 = 20 fps.. etc.
This will NOT affect animations with defined speed (specially those ones with variable framerate, since changing it to a fixed one would be disasterous).

1.5 Program limitations and TO DOs

SET2ANIM supports almost every feature of MovieSetter movies, but there are some things you'll probably want to know which still unsupported:

- Background effects, not supported.
Sorry but.. they're crap. It would be necessary to write several lines of code for that.. anyway the movies i saw with that looked better without.
- Audio panning, not supported.
I haven't see movies using this. It's not great loss... It can be implemented in future anyway.
- Faked timing for palette cycling. (cycle occurs always from frame to frame)
This is HARD to make because cycling frequency is completely asynchronous to frame sequence.
The only perfect way to do this is sooo hard.
Anyway the only movie i saw with color cycling looked great with my solution.

Ideas for future program versions:

- Support that BLITHOG (or however is called) as option for acceleration.
But i don't know how to program the hardware.
- Insert the audio data for 1st frame too (usually there's nothing for first frame, but..)
- Internally patch some malformed animations so they'll look ok after conversion.

1.6 Common Questions & Answers

Remembering the e-mail messages i received about SET2ANIM i decided to previously answer these potential questions:

questions and answers included:

1. What are those MovieSetter animations?
2. Where can i get MovieSetter animations?
3. Can i distribute the converted animations?
4. Can i convert again the converted animations to MPEG, QuickTime, etc?
5. How can i play those IFF ANIM+SLA files?
6. Why the sound sometimes fail while playing in BigAnim 4.0?
7. Why the converted animations are trashed if playing (in BigAnim) continuously from 2nd time?
8. Only BigAnim can play these animations with audio?
9. Aren't you going to write a new ANIM+SLA anim player?
10. Why ANIM+SLA? Why not ANIM and a separated AIFF file?
11. Why not AnimFX instead ANIM+SLA?
12. Why not ANIM Workshop format instead ANIM+SLA?
13. How can i convert it to MPEG or other format?
14. Are you going to turn SET2ANIM into a MovieSetter player too?
15. My program DOESN'T LOAD the converted animations!!! (updated 1st dec, 1999)

1. What are those MovieSetter animations?
They're movies created in the MovieSetter animation package in Amiga computers.
MovieSetter and its player are old programs which work with proprietary data format.
 2. Where can i get MovieSetter animations?
There's a lot in Aminet. You may find in other places in Internet too.
 3. Can i distribute the converted animations?
First, it depends on the animation author. Contact him/her about this.
Second, you CAN'T distribute the converted animation in a COMMERCIAL CD/other_media EXCEPT
AMINET IF SET2ANIM WAS USED FOR THAT FILE PROCESSING (doesn't matter if the final format is ANIM, MPEG, anything). -- If you're going to make money thanks to my work, I ALSO WANT THAT MONEY.
Third, for non commercial purposes, for the current version of SET2ANIM (0.3) i ASK you to NOT distribute the animations since they're converted in a unfinished version of this program. They may be incomplete or have errors.
 4. Can i convert again the converted animations to MPEG, QuickTime, etc?
Technically yes, but see question no.3.
 5. How can i play those IFF ANIM+SLA files?
In any IFF ANIM+SLA compatible player, such as BigAnim 4.0.
You may also play/edit the animations in any other animation software which fully supports the IFF ANIM standard. (in this case you'll have NO sound)
 6. Why the sound sometimes fail while playing in BigAnim 4.0?
Because bugs from BigAnim audio routines.
-

7. Why the converted animations are trashed if playing (in BigAnim) continuously from 2nd time?
Seems to be a BigAnim bug too. I loaded the animations with no problems in other programs.
8. Only BigAnim can play these animations with audio?
Currently yes. I HOPE someone add ANIM+SLA support to his/her player or develop a brand-new player supporting even AHI and graphic cards.
9. Aren't you going to write a new ANIM+SLA anim player?
I have no concrete plans for this. I receive no money for this and since i feel ok with BigAnim...
Anyway i have no graphic board for testing. (another ECS/AGA player would be redundant)
The specs are fully opened and it's an easy format. Anyone can support it.
10. Why ANIM+SLA? Why not ANIM and a separated AIFF file?
Not a problem. It's very easy to create a program which generates an AIFF sample from ANIM+SLA data.
11. Why not AnimFX instead ANIM+SLA?
AnimFX is much like the separated-AIFF-sample solution but being included internally in ANIM data. The animation would be HUGE.. and the standard itself is pretty complicated and confuse.
12. Why not ANIM Workshop format instead ANIM+SLA?
First, because i couldn't make the sound work with its player!
Second, because it doesn't support change of frequency, it's limited to 4 sounds per frame, there's no open documentation, etc etc.
ANIM Workshop's author never replied my emails too.
13. How can i convert it to MPEG or other format?
As you normally would for ANIM files. Be sure that the converter doesn't get confused by audio data.
You may load the ANIM+SLA and save again with no audio, too.
Perhaps me or someone else will develop auxiliary tools for generating AIFF samples, etc.
14. Are you going to turn SET2ANIM into a MovieSetter player too?
NO! SET2ANIM code is very unoptimal for being a player.
(well, it plays while it converts but just for preview purposes).
MovieSetter standard must be forgotten and may it RIP.
15. My program DOESN'T LOAD the converted animations!!!
I've PPaint 6.4 here and it doesn't load the anims with sound.
Some other programs may not load too.
Programs which does intelligent IFF file managing will load with no problems. (such as Deluxe Paint V)
For dumb programs now there's the -noaudio switch.
(updated in 1st dec, 1999)

1.7 About IFF ANIM+SLA (audio ANIM)

IFF ANIM+SLA (Statically-Loaded Audio), this name is because you need to have all the samples in memory before playing, even if you're going to play it from disk.

IFF ANIM+SLA is a format introduced by BigAnim's author, Christer Sundin, which adds audio information to IFF ANIMs while maintaining compatibility with older programs.

It's a simple but appropriate and elegant solution for having ANIMs with audio.

Since the audio information is completely independant from video chunks (ANHD, DLTA, etc) it's possible to use any encoding supported by IFF ANIM standard (1 to 8, J, future standards..).

Below there's the audio format description (information about IFF ANIM encoding you'll find in other documents), got from BigAnim 4.0 documentation.

Please note that SET2ANIM assumes that may be more than one SCTL chunk per frame. (this is unclear in BigAnim's docs)

Please assume this when building new programs supporting the IFF ANIM+SLA format.

Sound support

~~~~~

BigAnim has the ability to play IFF 8SVX sounds synchronized with the animation. These sounds may be added to an animation in two steps:

1) The sounds must be placed at the beginning of the animation file, immediately before the first ILBM picture in the animation. The file will have the following structure:

```
FORM ANIM
  FORM 8SVX
  FORM 8SVX
  :
  :
  FORM ILBM
  FORM ILBM
  :
  etc.
```

2) If a sound is to be started at a certain frame, this frame should contain an "SCTL" chunk. It looks like this:

```
struct SoundControl {
  UBYTE  sc_Command, // What to do, see below
         sc_Volume;  // Volume 0..64
  USHORT sc_Sound,   // Sound number
         sc_Repeats, // Number of times to play the sound
         sc_Channel, // Channel(s) to use for playing (bit mask)
         sc_Frequency, // If non-zero, overrides the VHDR value
```

```

        sc_Flags;        // Flags, see below
    UBYTE  pad[4];        // For future use };

```

The sound number, starting at 1, is simply determined from the order of the sounds in the file. The "Repeats" field may be set to 0, which means that the sound will be repeated continuously.

Currently, BigAnim supports these sound commands:

```

#define SC_CMD_PLAY_SOUND  1    // Start playing a sound #define
SC_CMD_STOP_SOUND        2    // Stop the sound in a given channel #define
SC_CMD_SET_FREQVOL       3    // Change frequency/volume for a channel

```

Sound flags:

```

#define SCB_NOINTERRUPT 0      // Play the sound, but only if #define
SCF_NOINTERRUPT (1<<0) // the channel isn't in use

```

Sometime soon (TM), I will release a new version of my animation tool "BuildAnim", that will be able to build animations with sounds, and add sounds to existing animations.

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## 1.8 About the author

PLEASE READ THE DOCUMENTATION AND INCLUDED F.A.Q. BEFORE SENDING ME  
QUESTIONS/BUG REPORTS

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<http://members.tripod.com/dmcab/set2anim/>

My homepage  
<http://members.tripod.com/dmcab/>  
<http://members.xoom.com/dancab/> (mirror)

Curitiba, BRAZIL

## 1.9 LEGAL ASPECTS

SET2ANIM Legal Issues

Using this program and/or animations converted by this program means acceptance on these terms.

There are two (2) aspects you should consider: regarding the program

itself, regarding the files previously processed by SET2ANIM (every file, even if converted from IFF ANIM+SLA to another format).

From now, undefined 'author' means 'SET2ANIM's author'.

Regarding the program executable and extra files:

-----

- You may NOT commercially distribute SET2ANIM in CDs or other media.  
Exception for:  
Aminet archives and CDs.  
Amiga-oriented magazines CDs.
- You may NOT modify or reverse engineer SET2ANIM in any way.
- The author does NOT give any kind of warranty about SET2ANIM. Any undesired effects from usage of this program, directly or indirectly generated, are under your exclusive responsibility.

Regarding the files previously processed by SET2ANIM:

-----

- Under these terms is every file previously processed by SET2ANIM, including files in IFF ANIM, IFF ANIM+SLA and other formats.
- You may NOT commercially distribute the processed files in CDs or other media.  
Exception for:  
Aminet archives and CDs.  
Amiga-oriented magazines CDs.
- When distributing, if permitted by these terms or by SET2ANIM's author, every unit or pack of processed files MUST include an easy-to-find note saying that the file was converted to IFF ANIM+SLA format with SET2ANIM (and version) which is ©1999 Daniel Mealha Cabrita.
- You may modify the converted files from SET2ANIM, but in this case you must add a note saying so.
- The author does NOT give any warranty regarding the quality of converted files from SET2ANIM.
- The author does NOT take any responsibility for any legal problems of yours regarding distribution of of copyrighted material converted by SET2ANIM.

Regarding BOTH aspects, the program SET2ANIM and the files processed by it: -----

- If the above legal terms are not applicable in your country you're NOT authorized to use or distribute SET2ANIM nor to use or distribute the files processed by this program.
- If you want to commercially distribute SET2ANIM and/or animations

converted please contact SET2ANIM's author directly.

Daniel Mealha Cabrita  
SET2ANIM's author

## 1.10 Development history

version -- changes

- 0.1 - start of SET2ANIM development (16th august, 1999)
    - animations are converted to a fixed framerate
    - sound support with ANIM Workshop's format (not working)
  
  - 0.2 - now 0s are added after odd-sized FORMS instead just making them even-sized. (ok, i know, it was lame)
    - animation resolution is now detected (the routine was present before, but it had an incredible silly bug).
    - CAMG (screen proprieties) chunk added.
    - WORKING SOUND SUPPORT! in IFF ANIM+SLA format.
  
  - 0.3 - FIRST PUBLIC RELEASE!
    - intelligent framerate guessing: now predefined fixed frame only for animations with no framerate definitions (trickier than it looks like, but it was easy to do anyway)
    - more secure program's behavior after occurred errors.
    - background scrolling effect support added.
    - palette cycling effect support added.  
NOTE: cycling timing is NOT implemented because its asynchronous behavior to animation frames. One cycle step is done at each frame (my solution looked great in the only animation with cycling i have).
  
  - 0.4 - some critical parts of code were rewritten in ASM.  
25% speed gain with AGA+Fastram. For ECS may be more.
    - workaround for 0xFFFFnnnn sized FORMS inside Moviesetter files. now animations like 'anti-lemmin demo' can be converted.
    - parameter parsing now rewritten, adding the following options:
      - noaudio (generates ANIM file with NO audio)
      - framestep N (affects only anims with undefined framerate)
-